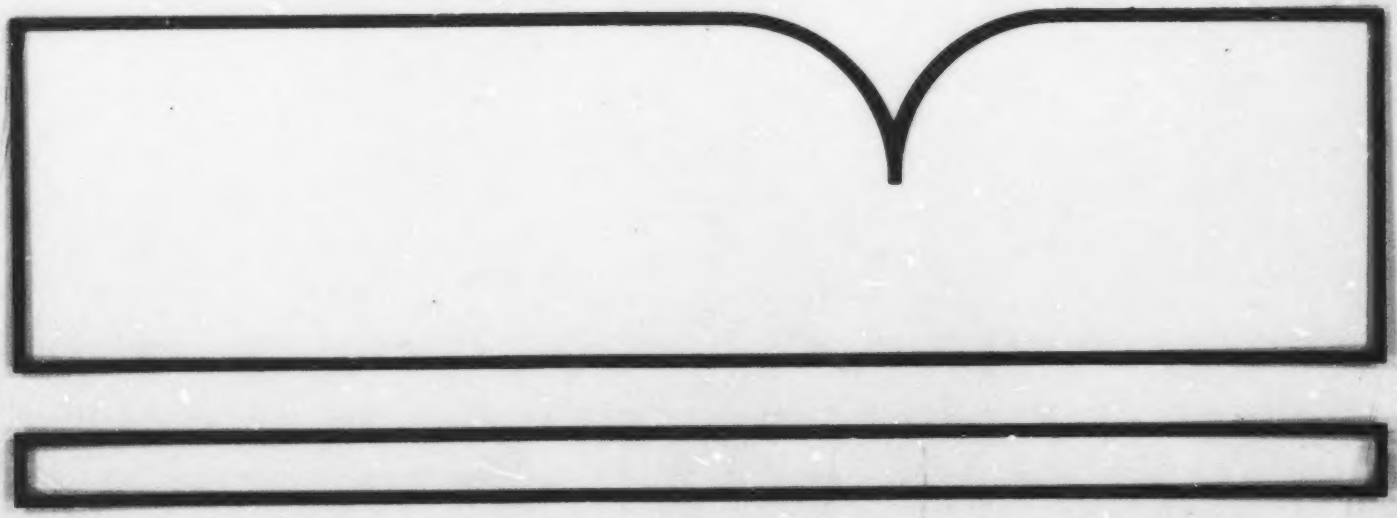
PB85-213817

Superfund Record of Decision (EPA Region 3)
Fischer and Porter Site
Warminster, Pennsylvania, May 1984

(U.S.) Environmental Protection Agency
Washington, DC

4 May 84



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Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R03-84/004
May 1984

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EPA

Superfund Record of Decision:

Fischer & Porter Site, PA

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Fischer & Porter Company, Inc. has operated at the same location since 1947 manufacturing water flow and industrial process control equipment. Trichloroethylene (TCE) was used as a degreaser in the manufacturing process. TCE and perchloroethylene (PCE) have been identified in the industrial water supply wells on-site and in municipal water supply wells of nearby towns.

The selected on-site remedial measure includes: facility improvements to prevent future releases of TCE and PCE; pumping wells and packed column aeration to reduce effluent levels of TCE and PCE and discharge of treated effluent to a surface water source according to state stream discharge requirements. Treatment of contaminated municipal wells by packed column aeration towers, to reduce TCE and PCE to the 10^{-6} risk level, was also selected as a cost-effective remedial action.
Key Words: Consent Decree, Ground Water Contamination, Municipal Water Supply, Packed Column Aeration, PCE, TCE, Water Quality Standards, Drinking Water Contiminants, Risk Levels

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Site Name: Fischer & Porter Site, PA Contaminated media: sw Key Contaminants: TCE, PCE		

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ENFORCEMENT DECISION MEMORANDUM

REMEDIAL ALTERNATIVE SELECTION

Site: Fischer and Porter, Warminster, Pennsylvania

Analysis Reviewed

I have reviewed the following documents describing the need for remedial alternatives at the Fischer and Porter site which is under the ownership of Fischer and Porter Company and located in Warminister, Pennsylvania.

1. Summary of Remedial Alternatives Selection.

2. Memorandum dated 5/3/84 from Thomas Eichler to Lee Thomas on Recommended Remedial Action at the Fischer and Porter site.

3. Memorandum dated 4/23/84 from Thomas Eichler to Courtney Price on concurrence on Proposed Consent Decree.

In addition, I have discussed the issues involved in this case with my staff and considered their recommendations.

Description of Selected Alternative

1. Ground-water Recovery and Treatment On-site

   - contaminated ground water shall be recovered through pumping wells installed on the site, treated to contaminant levels specified in the consent decree, and discharged pursuant to state surface water discharge requirements.

ISSUES AND RESOLUTIONS

KEY WORDS

2. Specific remedies to abate these drinking water contaminants should be consistent with the remedial technologies and risk levels developed for sites with similar characteristics.

- Drinking Water Contaminants
- Risk Levels

ENFORCEMENT DECISION DOCUMENT
BRIEFING ISSUES

Site: Fischer and Porter, Warminster, Pennsylvania

Region: III

AA, OSWER
Briefing Date: May 2, 1984

SITE DESCRIPTION

The Fischer & Porter Company, Inc. has operated at the same location since 1947 manufacturing water flow and industrial process control equipment. Trichloroethylene (TCE) was used as a degreaser in the manufacturing process. TCE and perchloroethylene (PCE) have been identified in the industrial water supply wells on-site and in municipal water supply wells of nearby towns.

SELECTED ALTERNATIVE

The selected on-site remedial measure includes: facility improvements to prevent future releases of TCE and PCE; pumping wells and packed column aeration to reduce effluent levels of TCE and PCE and discharge of treated effluent to a surface water source according to state stream discharge requirements. Treatment of contaminated municipal wells by packed column aeration towers, to reduce TCE and PCE to the 10^{-6} risk level, was also selected as a cost-effective remedial action.

ISSUES AND RESOLUTIONS

1. The judicial consent decree provides for enhanced recovery and treatment of contaminated ground water under the site in order to reduce or eliminate further migration. Contaminated ground water will be pumped and treated by packed column aeration to reduce effluent levels of TCE and PCE to 4.5 and 3.5 ppb respectively. In addition, the consent decree requires funding of a water treatment system for contaminated municipal wells to reduce levels of TCE and PCE. This will provide the community with water presenting a 10^{-6} health risk level for TCE and PCE as defined by the National Academy of Sciences.

KEY WORDS

- Consent Decree
- Ground Water Contamination
- Municipal Water Supply
- Packed Column Aeration
- PCE
- TCE
- Water Quality Standards

2. Provision of treatment for off-site users of ground water

   - treatment shall be provided to municipal drinking water supplies for affected ground water supply wells such that contaminants are reduced to currently acceptable drinking water standards.

3. Effect of the selected on-site and off-site remedies on ground-water contamination

   - the combination of the on-site pumping and treatment and the pumping and treatment of the municipal wells off-site will effectively contain the further migration of the ground-water contaminant plume originating at the Fischer & Porter site, and will serve to gradually reduce the concentrations of contaminants within the plume to acceptable levels.

Declarations

Consistent with the Comprehensive Environmental Response, National Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan, and after consultation with the State of Pennsylvania, I have determined that the above remedy for the Fischer and Porter site effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare and the environment.

Lee Thomas
Assistant Administrator, OSWER

May 4, 1984
Date

V

Summary of Remedial Alternative Selection

Fischer & Porter

Site Location and Description

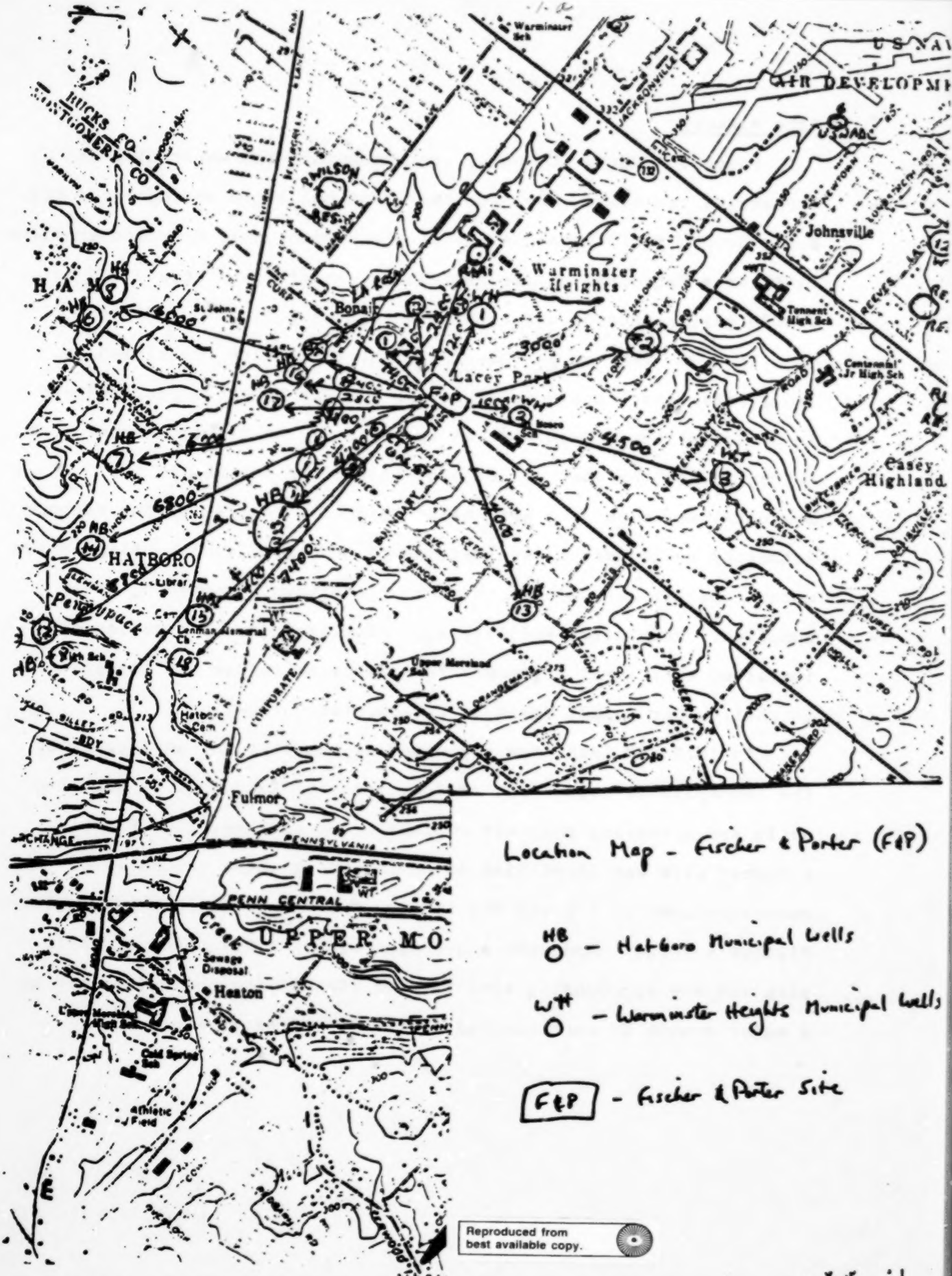
The Fischer and Porter site refers to the ground water contamination problem associated with the Fischer and Porter Company, located at the intersection of County Line Road and Jacksonville Road, Warminster Township, Bucks County, PA. (See location map)

It lies in the the Piedmont physiographic province at the boundary of the Lowland section and the Piedmont Uplands section. The property drains to an unnamed tributary of Pennypack Creek located 1,000 feet northwest of the plant property.

The area is underlain by the Stockton Formation, the oldest unit in the Triassic-aged Newark Group. The Stockton Formation dips to the northwest at approximately 12 1/4 degrees and is divided into three members; the middle arkose member which underlies the property constitutes the major aquifer in the area. (SME Martin, 1980)

The plume of contaminated ground water under study is contained within this middle arkose member of the Stockton Formation.

Fischer & Porter Company had depended on this ground water for its water supply but has since switched to an alternate drinking water source. Both Warminster Heights and Hatboro, communities situated adjacent to Fischer & Porter, use wells for their water supply.


Location Map - Fischer & Porter (F&P)
HB - Hatboro Municipal Wells
WH - Warminster Heights Municipal Wells
F&P - Fischer & Porter Site
Warminster Heights
Lacey Park
HATBORO
Fulmor
Johnsville
Easey Highland
PENN CENTRAL
PENNSYLVANIA
Heaton
Reproduced from best available copy.

Site History

Fischer & Porter Company, Inc., manufactures water flow and industrial process control equipment and has owned and operated its Bucks County facility since 1947. The company used trichloroethylene (TCE) as a degreaser at its processing facility and stored TCE in a 2000 gallon underground tank which was periodically refilled.

In 1979, TCE and perchloroethylene (PCE) were identified in industrial water supply wells on the Fischer & Porter property and in municipal water supply wells operated by the Hatboro Water Authority for the Town of Hatboro, as well as several of the municipal wells serving Warminster Heights. Several of the Hatboro Authority wells were closed because of high TCE levels. Alternative water supplies were sought to augment the town's remaining water supplies. Warminster Heights, with Fischer & Porter's assistance installed additional treatment technology to reduce the contaminants in their water supply wells to an acceptable level.

In 1979 and 1980, EPA responded to requests for assistance by the Pennsylvania Department of Environmental Resources by sampling wells and surveying possible contamination sources. The Fischer & Porter site was identified as having the highest ground water concentrations of TCE and PCE (87,000 ppb and 26,000 ppb respectively). Fischer & Porter conducted a hydrogeologic investigation of their site and the surrounding area further identifying their facility as a major source of contaminants to the ground water aquifer.

Current Site Status

Investigations conducted by EPA and the Fischer & Porter Company, have defined the physical nature of the aquifer which has become contaminated and from which Hatboro and Warminster Heights derive their water supplies. The extent of the contaminant plume and the general nature of its migration have also been described. The middle arkose member of the Stockton Formation is and has been heavily used for ground water for both domestic and industrial purposes. Prior to the discovery of TCE/PCE contamination in the aquifer, the communities of Hatboro and Warminster Heights were fully dependent on ground water from this source. Intensive extraction of water from this rock unit, principally by municipal wells, has drastically modified the configuration of the prism of water in the rock unit, and has created steep hydraulic gradients superimposed on the water-table surface that under "normal" circumstances would prevail under these communities. Municipal wells have been in operation since ca 1900; as the local population grew and the demand for water increased, both the number and the yields of municipal wells ahve increased. This pattern has imposed significant historical variation on the configuration of the water-table surface under these communities, a variation that has continued during the period of use of contaminants at the Fischer & Porter plant.

The distribution of contaminants in ground water in the middle arkose member of the Stockton Formation under and adjacent to the Fischer & Porter plant is consistent with movement of contaminants contained in the ground water. This contaminant movement is described as follows:

1. radially outward from the Fischer & Porter plant,
2. down the dip of inclined beds in the aquifer, to a limited extent,
3. along the strike of individual beds in the aquifer,
4. down regional and local slopes on the surface of the water table, and
5. into the regions of pumping influence surrounding the Hatboro and Warminster Heights Wells of concern. (Giegengack, 1982)

Enforcement

Following investigations initiated by EPA and the State of Pennsylvania in 1979, a complaint was drafted and a lawsuit filed against Fischer and Porter Company, Inc. in U.S. District Court for the Eastern District of Pennsylvania on 10/8/80 pursuant to Section 7003 of RCRA and Section 1431 of the Safe Drinking Water Act. The complaint alleged releases of hazardous wastes into the environment presenting an imminent and substantial endangerment to public health, welfare and the environment, and the complaint alleged that these hazardous wastes were affecting a public drinking water supply.

Negotiations were initiated with representatives of Fischer & Porter Company in 1981, seeking mitigation of the above referenced endangerment and relief for the affected water supplies. Negotiations have continued and resulted in a judicial consent decree providing for the remedy described in this Enforcement Decision Memorandum and to be undertaken by the responsible party.

Consistency with the National Contingency Plan

When the U.S. Department of Justice filed the complaint against Fischer & Porter Company in 1980, specific remedies to abate the endangerment presented by the site were specifically sought in the complaint. These remedies included aquifer restoration at the site through ground water pumping and treatment, protection of public health by providing treatment at the contaminated public water supply wells, and improvements at the facility to prevent further releases of contaminants into the environment from the facility. These enumerated remedies formed the basis for negotiations with Fischer & Porter over the following four years and have resulted in the remedial action plan contained in the final consent decree.

On-site Remedial Measures

The complaint sought and the consent decree provides for facility improvements which will prevent future releases (spillage, leakage) of TCE and PCE from the facility and into the subsurface environment. These actions will essentially remove the source term of the contaminated plume which now exists in the ground water beneath the site.

A process water supply well has been continually pumping at the site since facility operations began and since the ground water contaminants were initially discovered. This pumping rate of approximately 25 gallons per minute has demonstrated some limited effectiveness in controlling the migration of the contaminant plume by creating a limited cone of influence and removing contaminants from the aquifer beneath the site.

The complaint sought and the consent decree provides for enhanced recovery and treatment of contaminated ground water under the site. Three wells will be pumped at a minimum rate of 75 gallons per minute to extend the existing cone of influence to perimeter monitoring wells and contain the further migration of contaminants from the site. Contaminated ground water will be pumped continuously and treated by packed column aeration to reduce effluent levels of TCE and PCE to 4.5 and 3.5 ppb respectively. The treated effluent will then be discharged to a surface water course according to state stream discharge requirements. This recovery process will continue until such time that the above treatment levels are attained in the ground water beneath the site or contaminant levels stabilize over a twenty-six month monituring period.

This on-site remedy is technologically feasible and reliable and is the only measure which can effectively control contaminant migration and remove contaminants from beneath the facility. This remedy is consistent with on-site remedies developed pursuant to 300.68(e-j) of the National Contingency Plan.

Off-site Remedial Measures

The complaint specifically sought protection of public health by providing adequate treatment of contaminated ground water supply wells operated by Hatboro and Warminster Heights. These remedial measures were appropriate because the contaminant plume extended from the Fischer & Porter site to the municipal supply wells.

The municipalities considered alternate water supplies and alternate treatment technologies to remedy their water supply problem. Hatboro rejected alternate water supplies because of cost and because the available alternate water supply also contained unacceptable levels of contaminants. Consequently, treatment of the contaminated Hatboro wells was sought as the cost-effective remedial alternative. The consent decree requires Fischer & Porter Company to provide funding ($500,000) to Hatboro to be used for installation and operation of packed column aeration towers which will reduce TCE and PCE levels in the affected water supplies to 4.5 and 3.5 ppb respectively (currently the 10^{-6} risk levels developed for these chemicals by the National Academy of Sciences).

Warminister Heights sought similar treatment of their contaminated wells because no alternate water supply was available. The consent decree requires Fischer & Porter to provide funding ($46,200) to Warminster Heights for installation of a water treatment system capable of reducing contaminated levels to the treatment levels stated above.

Both water treatment systems will effectively abate the endangerment to public health by reducing contaminant levels in affected water supply wells to safe drinking water concentrations. The off-site remedy achieved by the consent decree has been developed consistent with the objectives of 300.68 (e-j) of the National Contingency Plan.

Community Relations

Since the problem of contaminated ground water and drinking water supplies was first identified at the Fischer & Porter site in 1979, the municipalities of Hatboro and Warminster Heights have been involved in discussions with EPA and the responsible party concerning resolution of the problem. The recommended alternatives have been discussed with both communities on repeated occasions in conjunction with settlement negotiations, and the communities have indicated that they approve of the remedies sought for their water supplies. Further, representatives of the municipalities have indicated that they will sign appropriate agreements documenting their committment to implement the recommended off-site remedial action.

Operation and Maintenance

Operation and maintenance requirements associated with the recommended alternatives include a program of water level and water quality monitoring to verify performance of the on-site ground water recovery and treatment system. These O & M costs will be covered entirely by the responsible party. O & M costs associated with the treatment systems installed on the municipal wells include normal operation and maintenance of the systems (utility costs for pumps and blowers) and any water quality monitoring which might be required to ensure performance of the treatment systems. The municipalities will assume responsibility for these costs supplemented by funds provided to them from the responsible party.